

### **CLAIM AMENDMENTS**

Claims 1-7 (Canceled).

Claims 9-12 (Canceled).

Claim 13. (Previously presented) A method for producing a multi-mode optical waveguide comprising at least one core and a cladding having a refractive index which is lower than that of the at least one core, the method comprising the steps of:

forming an under cladding layer onto a substrate;

preparing a mixture containing a reactive oligomer having general formula (I) and a photopolymerization initiator by blending respective amounts thereof and controlling viscosity of the mixture to a viscosity range of from 500 cps to 10,000 cps by varying the amount of the reactive oligomer in a range of from 10 to 50 wt %;

where R is  $C_mX_{2m+1}$ , where m is a natural number, X is one of a hydrogen atom, a heavy hydrogen atom, or a halogen group, and n is a natural number;

forming on the under cladding layer a layer of the mixture by spin coating;

irradiating the layer of the mixture while the layer is in liquid form and has a viscosity ranging from 500 cps to 10,000 cps, either with light through a mask or directly with condensed light, to form a latent image in pattern form which includes photocured irradiated areas and non-irradiated areas;

removing the layer of the mixture in the non-irradiated areas with a solvent to form a pattern, for use as a core portion, for passage of light; and

forming an upper cladding layer on the core portion and an upper portion in the surroundings thereof.

Claim 14. (Previously Presented). The method according to claim 13, wherein the reactive oligomer having general formula (I) has a value for n which is five.

Claim 15. (Previously Presented). The method according to claim 13, wherein spin coating is carried out at about 1000 rpm.